

IMAGE

An **image** (from Latin: *imago*) is an artifact, for example a **two-dimensional picture**, that has a similar appearance to some **subject**—usually a physical object or a **person**.

Images may be **two-dimensional**, such as a **photograph**, screen display, and as well as a three-dimensional, such as a **statue** or **hologram**. They may be *captured* by **optical** devices—such as **cameras, mirrors, lenses, telescopes, microscopes**, etc. and natural objects and phenomena, such as the **human eye** or water surfaces.

Image file size: Image file size expressed as the number of bytes--increases with the number of pixels composing an image, and the colour depth of the pixels. The greater the number of rows and columns, the greater the **image resolution**, and the larger the file. Also, each pixel of an image increases in size when its colour depth increases--an 8-bit pixel (1 byte) stores 256 colors, a 24-bit pixel (3 bytes) stores 16 million colours, the latter known as **truecolor**.

Image Compression

Image compression is minimizing the size in bytes of a graphics file without degrading the quality of the image to an unacceptable level. The reduction in file size allows more images to be stored in a given amount of disk or memory space. It also reduces the time required for images to be sent over the Internet or downloaded from Web pages.

JPEG

GIF replace to PNG newly.

Text Compression: It is crucial that compression be lossless because a single error can seriously damage the meaning of a text file, or cause a program not to run.

Image Compression: In image compression, a small loss in quality is usually not noticeable. There is no "critical point" up to which compression works perfectly, but beyond which it becomes impossible. When there is some tolerance for loss, the compression factor can be greater than it can when there is no loss tolerance.

For this reason, graphic images can be compressed more than text files or programs.

A. **Lossy compression:**

Lossy compression is most commonly used to compress **multimedia** data (**audio, video, and still images**), especially in applications such as **streaming media** and **internet telephony**

The picture is converted to a digital file by considering it to be an array of dots and specifying the color and brightness of each dot. If the picture contains an area of the same color, it can be compressed without loss by saying "200 red dots" instead of "red dot, red dot, ...(197 more times)..., red dot."

The original contains a certain amount of information; there is a lower limit to the size of file that can carry all the information. As an intuitive example, most people know that a compressed ZIP file is smaller than the original file, but repeatedly compressing the file will not reduce the size to nothing and will in fact usually increase the size.

B. Lossless data compression

Lossless data compression is a class of [data compression algorithms](#) that allows the exact original data to be reconstructed from the compressed data. The term *lossless* is in contrast to [lossy data compression](#), which only allows an approximation of the original data to be reconstructed, in exchange for better [compression rates](#).

Some image file formats, like [PNG](#) or [GIF](#), use only lossless compression, while others like [TIFF](#) and [MNG](#) may use either lossless or lossy methods.

Compression ratio:

The compression ratio (that is, the size of the compressed file compared to that of the uncompressed file) of lossy video codecs is nearly always far superior to that of the audio and still-image equivalents.

- Video can be compressed immensely (e.g. 100:1) with little visible quality loss
- Audio can often be compressed at 10:1 with imperceptible loss of quality
- Still images are often lossily compressed at 10:1, as with audio, but the quality loss is more noticeable, especially on closer inspection.

The compression rate is 5 to 6 % in lossy compression while in lossless compression it is about 50 to 60 % of the actual file.

Compression using Microsoft Office Picture Manager

The compression options in Microsoft Office Picture Manager reduce both file size and picture dimensions based on how you intend to use the picture, such as in Web pages or e-mail messages.

1. Select the pictures you want to compress.
2. On the **Picture** menu, click **Compress Pictures**.
3. Do one of the following:
 - a. To compress your pictures for insertion into a document, under **Compress for**, click **Documents**.
 - b. To compress your pictures for publication on a Web page, under **Compress for**, click **Web pages**.
 - c. To compress your pictures for sending in an e-mail message, under **Compress for**, click **E-mail messages**.
4. Click **OK**.

You can undo compression by clicking **Undo Compress Picture** on the **Edit** menu. Compression changes will not be saved until you explicitly save them. You can save your compression changes either immediately after performing them, or at any time before closing Picture Manager.